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Summary of Comments and Response to Comments on the Proposed Amendments to the Regulation and State Implementation Plan for Ozone; and

Findings under the Massachusetts Low Emission Vehicle Statute, M.G.L. c. 111, Section 142K.

310 CMR 7.40:

The Massachusetts LOW EMISSION VEHICLE PROGRAM

Regulatory Authority: M.G.L. c. 111, Sections 142A through 142M

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I. SUMMARY OF AND RESPONSE TO COMMENTS ON 310 CMR 7.40: THE LOW EMISSION VEHICLE PROGRAM REGULATION

Comments were received from the following organizations. The number(s) following each comment or quote within a summary of a comment refer to a commenter as listed below:

1. Alliance of Automobile Manufacturers
2. Association of International Automobile Manufacturers, Inc. (AIAM)
3. Clean Water Action
4. Conservation Law Foundation (CLF)
5. DaimlerChrysler
6. Environmental Defense
7. Ford Motor Company, World Headquarters
8. General Motors (GM)
9. Massachusetts Petroleum Council - American Petroleum Institute
10. Massachusetts Climate Action Network
11. Massachusetts Public Interest Research Group (MASSPIRG)
12. Massachusetts State Automobile Dealers Association, Inc.
13. Natural Resources Defense Council (NRDC)
14. New York State Department of Environmental Conservation
15. Sierra Club
16. Sierra Research, Inc. (including all associated contributors to Sierra's comments)
17. Union Of Concerned Scientists
18. Individual Commenters - Appendix A provides a complete list of 91 individuals that submitted generally identical comments.

The Massachusetts Department of Environmental Protection (MassDEP) proposed amendments to 310 CMR 7.40, the Low Emission Vehicle (LEV) Program regulations, and, in accordance with the public review process requirements of M.G.L. Chapter 30A, made the proposed amendments available for public review, published notification of the amendments, and held a public hearing in order to solicit public comment on the regulation. The public comment period ended October 27, 2005 and relevant comments have been summarized and organized into the following groupings:

A. General Comments in Support
B. Air Quality and Public Health Issues
C. Statutory and Regulatory Authority
D. Technical Comments

Many of the comments received during the public comment period were, in many cases, nearly identical to those received by the California Air Resources Board (CARB) during its Greenhouse gas (GHG) rulemaking process. CARB fully addressed such comments in its August 4th, 2005 Final Statement of Reasons and, as such, MassDEP incorporates said document herein by reference and refers interested parties to CARB's web site (http://www.arb.ca.gov/regact/grnhsgas/grnhsgas.htm). Further, MassDEP has included as an attachment, a November 22, 2005 document submitted by Meszler Engineering Services which contains comments and analyses of other technical materials and comments submitted to MassDEP.

A. General Comments in Support

(1) Comment: MassDEP received 91 generally identical comments from individuals which indicated that they were supportive of Massachusetts' adoption of the "Pavley" provision. These comments stated that the provisions will address climate change, reduce air pollution, and reduce ozone pollution. Further, the commenters noted that the savings resulting from more efficient vehicles would offset "the small increase in average cost." They also urged Massachusetts to join with the other regional states in adopting the GHG standards. (18)

Response: MassDEP agrees with these comments.

(2) Comment: Several environmental organizations submitted comments expressing strong support for the adoption of California's vehicle GHG standards. The commenters noted that the proposed GHG standards are critical to addressing the threat of global warming in Massachusetts and protecting public health, and that adoption of the California standards is required by state law. (3, 4, 6, 10, 11, 13, 14, 15, 17)

Response: MassDEP agrees with these comments.

(3) Comment: A number of comments were received which highlighted Massachusetts' past efforts to bring cleaner cars to consumers and stated that adopting the proposed GHG standards will continue such efforts. Further, the commenters urged the timely adoption of the proposed standards. (3, 4, 6, 10, 11, 13, 14, 15, 17)

Response: MassDEP appreciates such support and recognizes the need to adopt the standards in a timely manner.

B. Air Quality and Public Health Issues

(4) Comment: MassDEP received numerous comments which highlighted the potential negative air quality, public health, and other environmental impacts associated with increased GHG emissions. For instance, the Massachusetts Climate Action Network stated, "Accumulating scientific evidence on the impacts of global warming underscores the urgent need to stabilize our climate. These impacts include unexpectedly rapid melting of the polar ice caps and recent weather events, including the increasing intensity of hurricanes in the Gulf of Mexico. Reducing emissions of carbon dioxide is the primary method through which we can begin to protect our beaches, trees, weather patterns, public health, and economy from catastrophic future damage due to climate change." Others commented that climate change will lead to increases in the formation of low level ozone and that the proposed standards amount to a long term strategy to address this potential. (3, 4, 6, 10, 11, 13, 14, 15, 17)

Response: As noted in the Background and Technical Support Document issued as part of this rulemaking, "*There is a consensus among climate scientists that these changes result from atmospheric concentrations of carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and other heat-trapping gases. These greenhouse gases form a blanket of pollution that stays in the atmosphere and may be the fundamental cause of climate instability characterized by severe weather events such as storms, droughts, floods, heat waves, and sea level rise.*[1]" Adoption of the California vehicle GHG standards will result in

[1] Massachusetts Climate Protection Plan, 2004, Page 5

reductions of GHG emissions, beginning the process to mitigate the potential negative impacts of climate change in Massachusetts.

(5) Comment: A number of comments were received which asserted, "Climate change gases cannot be effectively regulated state by state, because they are fundamentally different from criteria air pollutants."(2) Further, "the reduction of greenhouse gases (GHG) is a global concern that can only be addressed through coordinated international efforts."(7) One commenter noted that any reduction in GHGs achieved by adopting the proposed standards would amount to "a drop in the bucket of carbon dioxide emissions in this country." (1) (1, 2, 5, 7, 8, 9, 12, 16)

Response: MassDEP agrees that addressing climate change is a global issue and must be dealt with on a global scale. With that said, Massachusetts, in conjunction with California and several other states, as well as many local governments and agencies throughout the country, is willing to take action and begin the process to address the threat posed by climate change. In the California Air Resources Board's (CARB's) response to a similar comment (see comment number 352 in its Regulations to Control Greenhouse Gas Emissions From Motor Vehicles, Final Statement of Reasons), they noted that "criteria air pollutants – which are regulated state-by-state…are clearly known to have inter-state and international impacts on air quality…these impacts are far outside the urban region in which they are emitted" and that "The same is true of CO_2." MassDEP agrees with CARB and others that, like criteria pollutants, GHG emissions can be controlled at a local level, even though GHG travels beyond local borders.

(6) Comment: A number of the automobile manufacturers and their supporters commented that adoption of the GHG standards would not lead to any significant reduction in GHGs on a global or local scale, nor would it lead to any measurable benefits with respect to environmental or public health issues in Massachusetts. (1, 2, 5, 7, 8, 9, 12, 16)

Response: MassDEP disagrees with such comments. See response to comment 5 above. Similar comments were also addressed in comment numbers 258-262 of CARB's Finial Statement of Reasons, those comments and CARB's responses are incorporated here-in by reference.

C. Statutory and Regulatory Authority

(7) Comment: The Massachusetts proposal does not meet the requirements of section 177 of the Clean Air Act (CAA), which states that eligible states may adopt only "California standards for which a waiver has been granted by EPA under section 209 of the CAA (see 42 U.S.C. 7507)." EPA has not granted a section 209 waiver for California's vehicle greenhouse gas standards. (1, 2, 5, 7, 8, 9, 12, 16)

Response: MassDEP does not agree with this comment. Section 177 allows the Department to adopt California's low emission standards *before* EPA grants California a wavier (assuming one is required) under §209 of the Act, "so long as [a §177 state] makes no attempt to enforce the plan prior to the time when the waiver is actually obtained" *Motor Vehicle Mfrs Ass'n v. New York State Dept. Envtl. Conservation*, 17 F.3d 521, 534 (2d Cir. 1994). Alternatively, California may make a determination that the GHG emission standards are within the scope of an existing waiver granted by EPA under §209.

(8) Comment: "State standards for greenhouse gas emissions from vehicles are de facto fuel economy standards for vehicles, which are preempted by federal laws and regulations mandating uniform,

nationwide standards for fuel economy (the federal Energy Policy and Conservation Act of 1975, as amended 49 U.S.C. 32901et seq.)." (1, 2, 5, 7, 8, 9, 12, 16)

Response: The MassDEP does not agree with this comment. CARB received similar comments during their rulemaking process and provided an extensive response. The Department has reviewed and agrees with CARB's response to this and other similar comments. See CARB Regulations to Control Greenhouse Gas Emissions From Motor Vehicles, Final Statement of Reasons at pages 358-68.

(9) Comment: The auto industry commented that Massachusetts is not required to adopt California's GHG standards as part of the LEV regulation. Further, separating the LEV standards from the GHG standards would not contravene the "identicality" requirements of the Clean Air Act. (1, 2, 5, 7, 8, 9, 12, 16)

Response: MassDEP does not agree with this comment. In considering both section 209 of the Clean Air Act (federal preemption of new motor vehicle emission standards and the California exception) and section 177, Congress clearly indicated there are to be only two permissible new motor vehicle emission standards. Under this scheme states may choose between federal standards and California standards. Section 177 states are simply not permitted to create their own hybrid mix of federal and California standards.

(10) Comment: Comments arguing the exact opposite of comments 7, 8, and 9 above, were submitted by supporters of the proposed standards. For instance, the Conservation Law Foundation stated that "California's GHG standards are incorporated into its Low Emission Vehicle standards and become effective in Model Year 2009. See Title 13 CCR § 1900 et seq. Therefore, DEP must also adopt the proposed rule effective MY 2009 in order to remain identical with California. The courts have strictly interpreted the identicality requirement in § 177. Thus, failure to adopt the GHG standards would put Massachusetts at risk of losing the entire LEV program." (3, 4, 6, 10, 11, 13, 14, 15, 17)

Response: MassDEP agrees that it is necessary to adopt California's GHG standards to satisfy the identicality requirement under §177.

(11) Comment: "The Department may not regulate the emissions of carbon dioxide… Section 142K does not empower the Department to address the problems of global warming by imposing limits on emissions of carbon dioxide from automobiles." (1)

Response: Massachusetts law requires that the Department adopt "… motor vehicle emission standards based on California's duly promulgated motor vehicle emission standards …, unless after the department establishes, based on substantial evidence, that said emission standards and a compliance program similar to the state of California's will not achieve in the aggregate, greater motor vehicle emissions reductions than the federal standards…." M.G.L. c.111, §142K. As in past rulemaking, the Department continues to find that California's motor vehicle emission control program continues to provide, in the aggregate, greater emission reductions than the current federal motor vehicle emission control program.

Notwithstanding §142K, under M.G.L. c.111, §§142A and B, the Massachusetts legislature has also granted the Department broad general authority to both define and regulate air pollution to protect public health and the environment. *See also: Town of Brookline v. Com'r of the Dept. of Envtl. Quality Eng'g,* 497 N.E.2d 9, 13 (1986). ("The role of [DEP] is to take primary responsibility for the regulation of air pollution.") Indeed, with respect to exercising that "responsibility," the Massachusetts Supreme Judicial

Court has held, "[w]hat may be injurious to life or interfere with the comfortable enjoyment of life is best left to the [MassDEP] to determine on a case-by-case basis in light of the most current scientific evidence.") *Id.*, c*iting: Brookline v. Commissioner of the Dep' t of Envtl. Quality Eng'g* 439 N.E.2d 792, 799 (1982). "Air pollution" is defined in the Department's regulations as "The presence in the atmosphere of *air contaminants* which would: a. cause a nuisance; b. be injurious, or be on the basis of current information, potentially injurious to human or animal life, to vegetation, or to property; or c. unreasonably interfere with the comfortable enjoyment of life and property or conduct of business. 310 CMR 7.00 (definitions) (2005) (emphasis added). "Air contaminant" means any substance or man-made physical phenomenon in the ambient air space and includes, but is not limited to, dust, flyash, gas, fume, mist, odor, smoke, vapor, pollen, microorganism, radioactive material, radiation, heat, sound, any combination thereof, or any decay or reaction product thereof. *Id*. The Department believes this definition is sufficiently broad to include "greenhouse gas(s)" (GHGs) as defined by CARB in CCR, title 13, §1961.1(e)(4), and incorporated by reference in this rulemaking. *see* 310 CMR 7.40 (1) (Definitions).

(12) Comment: "Unilateral efforts by individual states to reduce motor vehicle CO_2 emissions will frustrate established foreign policy. The foreign affairs power and the Supremacy Clause of the U. S. Constitution therefore preempt the proposed regulation." (1)

Response: Mass DEP disagrees with this comment and notes that CARB received similar comments during its rulemaking process and responded at length. Hence, MassDEP referrers interested parties to pages 368-69 of CARB's Final Statement of Reasons.

(13) Comment: "The California motor vehicle greenhouse gas regulation is invalid under the Dormant Commerce Clause of the U. S. Constitution because it excessively burdens interstate commerce in "relation to [its] putative benefits" Pike v. Bruce Church, Inc. 397 U. S. 137, 142 (1970)." (1)

Response: MassDEP disagrees with this comment and notes that CARB received similar comments during its rulemaking process and responded at length. Hence, MassDEP refers interested parties to pages 372-373 of CARB's Final Statement of Reasons.

D. Technical Comments

(14) Comment: "The State of Massachusetts Department of Environmental Protection (MADEP) has proposed to adopt California's Greenhouse Gas (GHG) regulations for new motor vehicles. In taking this action, MADEP appears to assert, without having performed any technical analysis, that there will be no impact associated with the adoption of the California GHG regulations on criteria air pollutants and precursor emissions in the state." Multiple submittals of what the Alliance termed an "independent study" purported to demonstrate that adoption of the standards would lead to an increase in criteria pollutant emissions. (1, 2, 5, 7, 8, 9, 12, 16)

Response: This comment and the referenced study (performed by Sierra Research and its affiliates for the Alliance of Automobile Manufacturers) ultimately argues that adoption of the GHG standards will result in increases in smog forming criteria pollutants and is the basis upon which many of the arguments against adoption of the GHG standards are formed. MassDEP disagrees with such arguments, as did CARB and other adopting states that also received identical comments as part of their respective rule makings. In fact, CARB fully addressed this very issue throughout its rule making process and published a 12 page document issued on August 4, 2005 titled "ARB Staff Responses to Comments Raising

Significant Environmental Issues Regarding the Proposed Regulations to Control Greenhouse Gas Emissions from Motor Vehicles" (incorporated here-in by reference). MassDEP agrees with CARB and the other adopting states and interested parties are referred to the afore mentioned document, as well as Section III. C. of CARB's Final Statement of Reasons, also incorporated here-in by reference.

As noted above, other states, in addition to Massachusetts, received Sierra's analyses (with adjustments for each state). MassDEP received comments from the Alliance and Sierra Research which included the Massachusetts "adjusted" analyses with the same Massachusetts "adjusted" conclusions, that is, adoption of the GHG standards will increase the level of criteria pollutants because the new, efficient vehicles will be driven many more miles than new vehicles would have been without adoption of the GHG standards ("the rebound effect"), and older, more polluting vehicles will be kept on the road longer ("the fleet turnover effect"). A third issue associated with Sierra Research's criteria pollutant arguments is the decreased impact (compared to California) of the "fuel cycle emissions effect," which is the effect on criteria pollutants emissions resulting from the reduction of the amount of gasoline that has to be produced and transported to Massachusetts.

In summary, Sierra Research's increased criteria pollutant conclusions (and resultant legal arguments) are based on three key mechanisms, the fuel cycle effect, the fleet turnover effect, and the rebound effect. Despite having been fully addressed by CARB and others, MassDEP will briefly address them again here.

MassDEP notes that in their comments submitted to Massachusetts, the Alliance, Sierra Research, and their associates included lengthy comments addressing the critical analyses done by Meszler Engineering, through the Northeast States for Coordinated Air Use Management (NESCAUM) on behalf of the State of Vermont as part its rulemaking process. Meszler Engineering has provided further critical analysis and comments as part of this rulemaking process in response to the comments submitted to MassDEP by the Alliance, Sierra Research, and others. As noted earlier, Meszler's comments and analyses are incorporated herein by reference and are attached as Appendix B.

Fuel Cycle Effect. Sierra Research argues that although adoption of the GHG standards will reduce GHG and criteria pollutants, the level of reduction will be much smaller than that predicted for California, thus failing to offset the criteria pollutant increases predicted by Sierra as a result of the "rebound" and "turnover" effects.

MassDEP reviewed CARB's analysis of the "fuel cycle (or "upstream") effect" as part of the rulemaking process and agrees with CARB's findings that reductions in production and delivery of gasoline will result in not just decreased GHG emissions, but may also lead to reductions in criteria pollutants. Further, the benefits of the proposed GHG emission standards in Massachusetts, as determined by the NESCAUM[2] analysis, excluded potential "upstream" emission reductions associated with reduced petroleum processing. This means that the GHG reductions estimated in TABLE 2 of the Department's Background and Technical Support Document (18% in 2020 and 24% in 2030) do not include the benefits associated with the fuel cycle effect. The extent to which criteria pollutants are reduced as a result of adoption of the GHG standard was not the focus of this rulemaking effort but MassDEP recognizes that, generally, any criteria pollutant reduction will be beneficial to Massachusetts. The impact such reductions have with respect to the "rebound" and "turnover" effects is moot because those effects, as predicted in the Sierra Research study, have been found by CARB, MassDEP, and others, to be unsupportable (the reasons for which will be discussed below).

Rebound Effect. Sierra Research argues that because GHG compliant vehicles will be so much cheaper to operate, owners will then drive many more miles and, thus, increase their vehicle miles traveled (VMT)

[2] NESCAUM Study on GHG reductions, modified for Massachusetts' 5% tax rate. 11/02/05

beyond what they otherwise would have driven with non-GHG compliant vehicles. As a result of this increase in VMT, the GHG benefits will decrease and emissions of criteria pollutants will increase. Such conclusions stem from Sierra Research's study, which was found by CARB and others to inadequately account for the impact that the increased purchase price of GHG compliant vehicles would have on VMT. The Sierra Research study's primary reliance on improved vehicle efficiencies as the spur for increased travel, while neglecting to account for the effect of increased purchase price, results in highly inflated VMT. This, in turn, results in inflated predictions of criteria pollutant emission increases. MassDEP has determined, and concurs with CARB and others, that such an approach in predicting the impact on VMT (and the resultant emissions) by adoption of the GHG standards is flawed and does not accurately reflect the potential relationship between the GHG standards and increased criteria pollution. Further, Sierra Research's "rebound effect" analysis stands in stark contrast to the approach taken in their "fleet turnover effect" analysis (which will be discussed below), wherein they rely heavily on the impact that increased vehicle prices have on VMT and fleet turnover.

Fleet turnover effect. Sierra Research argues that consumers will delay the purchase of new GHG compliant vehicles due to the increased cost of such vehicles, leading to older, less clean vehicles being held longer and driven many more miles than they would be without adoption of the GHG standards. As a result, criteria pollutant emissions will increase. Once again, CARB and others, in reviewing Sierra Research's analyses with respect to "fleet turnover", determined that Sierra Research's analysis is flawed and fails to accurately predict the impact of adoption of the GHG standards. In Sierra Research's analysis, they assume that the average price of a new vehicle will increase by $3,000 (nearly three times that estimated by CARB), they under estimate the effects of reduced fuel related operating costs, and they assume continued increases in VMT despite a reduced fleet size (Sierra Research predicts new vehicle sales will drop by 26% in model year 2030 and several manufacturers will retreat from entire segments of the market). Given that Sierra Research's fleet turnover analysis is based, for the most part, on the factors listed above, but overwhelmingly on the inflated new vehicle prices, MassDEP (in concert with CARB and others) has concluded that the predictions made by Sierra Research with respect to criteria pollutants cannot be considered realistic. Further, MassDEP points out the contradictory predictions of fleet size between Sierra Research's two models and how those fleet size predictions impact VMT and criteria pollutant emissions (i.e., their rebound model predicts increased VMT and resultant criteria pollutant emissions from a fleet that does not shrink due to increased prices, whereas their turnover model predicts that increased prices will deter new vehicle purchases, force extended use and increased VMT in older more polluting vehicles, and that the fleet will shrink). In effect, Sierra Research is predicting that: 1) GHG compliant vehicles will be sold in sufficient quantities and such vehicles will be so efficient so as to cause consumers to drive significantly more miles; 2) criteria pollutant emissions will increase, however, at the same time, the high price of new GHG compliant vehicles will cause consumers to refrain from purchasing new vehicles, suppressing new vehicle sales, thereby shrinking the fleet; and 3) older cars will be driven longer and for so many more miles that criteria pollutant emissions will increase.

Despite the voluminous amount of materials submitted by the Alliance, Sierra Research, and others, arguing against adoption of the proposed GHG standards, the fact is that Sierra Research's study and, hence the Alliance's conclusions, are based on extreme assumptions (e.g., incremental costs nearly three times those projected by CARB, dramatic reductions in fleet size, significant shifts in purchase behavior) and does not predict in a credible way what may be the results of adopting the GHG standards in Massachusetts. MassDEP stands in concert with CARB and other adopting states, who also received identical comments and associated materials, and rejects the conclusion that adoption of the proposed GHG standards will lead to the increases in criteria pollutant emissions predicted by Sierra Research's study.

(15) Comment: Comments were received from manufacturers, the Alliance, and others which argued that the supporting analysis utilized by CARB, Northeast States Center for a Clean Air Future (NESCAF)/NESCAUM, and MassDEP was flawed and cannot support the conclusions that the proposed GHG standards are technically and economically feasible or that there will be any resulting environmental or health benefits. For instance, Daimler Chrysler stated that "some of the technologies identified by ARB staff have technical obstacles that must still be overcome…the ARB estimates of the costs of the feasible technologies are too low…staff has made unrealistic assumptions about the ability of manufacturers to implement technologies." GM noted that "ARB's analysis substantially overestimates benefits and underestimates costs" with respect to technology combinations and new technologies. (1, 2, 5, 7, 8, 9, 12, 16)

Response: See response to the following comment.

(16) Comment: Comments received from manufacturers and affiliated organizations assert that the cost of complying with the proposed standards is much higher than projected by CARB and MassDEP. For example, Ford stated that "these proposed regulations would impose significant costs on society, particularly consumers, dealers, and manufacturers," and the Alliance asserts that the average price per vehicle will increase by $3,000 dollars when the standards are fully implemented, not the $1,860 projected by CARB and MassDEP. (1, 2, 5, 7, 8, 9, 12, 16)

Response: MassDEP is confident that the extensive analyses performed by CARB, NESCAFF, and NESCAUM and the conclusions drawn are valid and will hold true for Massachusetts. Further, the MassDEP agrees with CARB's response to similar comments that the industry, in its analysis, "had not properly considered the technology improvement paths identified by ARB staff as a means to achieve the proposed requirements." (Comment number 331 of CARB's Final Statement of Reasons)

(17) Comment: "A primary concern related to cost is that ARB's estimates do not include the basic research and development costs that are associated with developing advanced technologies and the investments needed to bring the technologies to market. Instead, ARB's cost estimates are based primarily on per-unit charges estimated by component suppliers for what ARB refers to "long term, learned-out" production volumes of 500,000 units in a single plant using "flexible manufacturing" processes that enable a variety of models to be produced in one plant. Such costs do not account for the sizable research and development costs for advanced vehicle technologies or the sizable investments that would be needed for establishing the advanced manufacturing facilities that may be entailed." (2)

Response: This comment was submitted to CARB and MassDEP. MassDEP disagrees with this and other comments related to CARB and MassDEP underestimating costs and has determined that the analysis undertaken by CARB, NESCAFF and NESCAUM in developing the standards thoroughly accounted for such costs. For further review, see CARB's Final Statement of Reasons, Comment numbers 219 through 230, as well as 629 through 636.

(18) Comment: Several comments were submitted regarding the issue of consumer preference and the negative impact the proposed standards will have on vehicle availability. For instance, AIAM noted that "the ARB analysis fails to recognize the critical role consumers play in the equation," and the Alliance commented that the types of vehicles designed and marketed in Massachusetts were not controlled by the manufacturers but that "the consumers are in the driver's seat." Further, the Massachusetts Auto Dealers Association stated that the proposed standards would not only limit consumer choice, but that the increased costs would "impact sales and that dealers will sell fewer vehicles." The manufacturers

submitted comments furthering the argument that the standards will force them to limit the types of vehicles they will produce for sale in GHG states, thus limiting consumer choice. (1, 2, 5, 7, 8, 9, 12, 16)

Response: MassDEP disagrees with these comments, as did CARB and the Vermont Agency of Natural Resources (VANR) when they received the same comments during their respective rule making processes. In developing the GHG standards, one of the directives to which CARB was subject under AB 1493 was that vehicle model availability and consumer choice not be impacted and that costs to the consumer must be affordable. The standards were established by CARB after a thorough analysis of existing and potential control technologies as well as the costs associated with such technologies. Ultimately, CARB left the manufacturers free to determine which technologies to apply to which vehicles in order to meet the standards. As a result, it is anticipated that they will supply new car dealers and hence, the consumers, an undiminished selection of new vehicles from which to choose.

Further, MassDEP disagrees that consumers are the sole driver in determining what vehicles are designed and marketed in Massachusetts and points to the extensive marketing efforts by the manufacturers and dealers to influence consumer choice.

(19) Comment: Another common theme in the comments submitted by the manufacturers was that adoption of the standards "puts a disproportionate burden on the full line manufacturers and manufacturers of specialized vehicles."(6) GM noted that the "greenhouse gas standards are grossly unfair for General Motors in particular, because we continue to have the heaviest fleet average weight due to the mix of vehicles purchased by our customers, coupled with the much more lenient standards applied by California to certain of our competitors, especially the domestic manufacturers." (1, 5, 7, 8)

Response: In developing the proposed standards, CARB based its regulation on the manufacturer with the heaviest fleet mix (GM) to ensure that all manufacturers would be able to meet the standards. The regulations will require all manufacturers, including domestic and foreign manufacturers, to reduce GHG emissions from their fleets in order to comply with the fleet average standards.

(20) Comment: The following comments from DaimlerChrysler and GM, respectively, are representative of comments received from the Alliance and others regarding the employment impact the proposed regulations will have on the automobile industry. "The proposed rule would reduce employment in the automobile industry nationwide at manufacturing, supplier, and distribution facilities once the regulation would be fully implemented," and "Dramatically higher fuel economy standards such as those created by the California greenhouse gas regulation would repeat the mistakes of the past by disadvantaging domestic producers and harming overall U.S. employment." (1, 2, 5, 7, 8, 9, 12, 16).

Response: In response MassDEP points to CARB's peer reviewed analyses, which demonstrated that adoption of the GHG standards would result in significant gains in personal income and employment, exactly the opposite of the predictions made by the auto industry and its supporters. CARB responded at length to similar comments beginning with Comment number 387 of its Final Statement of Reasons. MassDEP is confident that, contrary to the auto industry's predictions, the reduced vehicle operating costs resulting from the proposed GHG standards will provide consumers with increased purchasing power and may lead to increased employment in industries associated with the auto industry, all of which will benefit the economy as a whole.

(21) Comment: A number of similar comments were submitted which referred to the recent Memorandum of Understanding (MOU) between the auto industry and the Canadian Government. DaimlerChrysler stated that "the command-and-control type of regulation adopted in California and under

consideration by the DEP stands in sharp contrast to the consumer- and market-oriented approach recently developed in Canada. Unlike the California rule, the Canadian agreement does not specify limits on any one manufacturer's allowed emissions of carbon dioxide. Rather, the Canadian automotive industry has agreed to aggregate reductions in greenhouse gases, and those reductions need not be obtained exclusively through reducing the emissions of new vehicles." DaimlerChrysler's comments are representative of the other comments submitted regarding this issue. (1, 2, 5, 7, 8, 9, 12, 16)

Response: The Canadian MOU is voluntary and reductions can come from any sector. Massachusetts already has a climate action plan which addresses GHGs from various sectors, including the mobile source sector. The emission of GHGs from mobile sources is very large and in order to do its part, the mobile source sector must also reduce GHG emissions.

(22) Comment: The Alliance commented that in order to comply with the proposed GHG rules, the manufacturers would choose "the least costly compliance strategies," which in turn will "include significant reductions in the weight of new vehicles." The Alliance goes on to suggest that as a result of this "down weighting" due to the proposed rules, there will be additional traffic fatalities in Massachusetts. (1, 16)

Response: MassDEP does not agree with this comment. CARB demonstrated during the development of the proposed standards that the manufacturers could achieve compliance without reductions in vehicle size or weight. In fact, the authorizing California legislation prevented CARB from using weight reduction as a compliance option in setting the standards. Should the manufacturers choose to pursue compliance through vehicle down sizing and weight reduction, such vehicles will still have to comply with federal vehicle safety standards. CARB addressed the issue of safety and downsizing in comment numbers 191 through 193 in its Final Statement of Reasons and, agreeing with those responses, MassDEP herein incorporates them by reference. As an example of the importance of vehicle design and dimension rather than weight, MassDEP cites the model year 2006 Honda CIVIC which utilizes, among a number of safety elements, a unique body structure that enhances occupant protection through enhanced collision energy management as compared to traditional body construction.

(23) Comment: GM, Ford, and Daimler Chrysler all commented that MassDEP did not make available information regarding a NESCAUM GHG study that is referred to in MassDEP's Background and Technical Support Document, which was, as GM points out, published in mid-September 2005. (5, 7, 8)

Response: On October 26, 2005, one day before the end of the public comment period, GM inquired regarding the NESCAUM GHG study referred to in our Background and Technical Support Document. In response, MassDEP provided a Summary document within 24 hours of the request. The requester chose to wait until the day before the comment period ended to ask for the documentation and therefore it was the requesters choice to receive the information on the last day of the public comment period.

(24) Comment: Ford noted that "effective national policies must be economy-wide and not solely focused on the automotive sector." Similar comments were received from others in the auto industry as well. (1, 2, 5, 7, 8, 9, 12, 16)

Response: The argument that GHG emissions can only be addressed on a national level (as opposed to a local level) for all sectors, was one that was made to CARB and other adopting states. As noted in a previous response, the Massachusetts plan to address climate change incorporates actions to reduce GHG emissions in all sectors, not just the mobile source sector. Mass DEP recognizes the potential benefits of

addressing GHG emissions nationally. However, Massachusetts, along with other state and local governments has decided to implement measures to address GHG emissions and the resulting potential climate change in advance of a nationwide program.

(25) Comment: "Transportation now accounts for more than one-third of CO_2 emissions in Massachusetts, and is the fastest growing emissions source. While progress is being made on controlling emissions from electricity generation and from energy use in buildings and industry, emissions from motor vehicles are virtually out of control. Thus, it is essential that serious policy measures be implemented concerning transportation, and adoption of California's standards is an important step in that direction." Although this comment is quoted from comments submitted by the Massachusetts Public Interest Research Group (11), it is representative of similar comments submitted by others. (3, 4, 6, 10, 11, 13, 14, 15, 17)

Response: MassDEP agrees that CO_2 emissions from the transportation sector must be addressed, just as they are being addressed in many other sectors.

II. FINDINGS UNDER THE MASSACHUSETTS LOW EMISSION VEHICLE STATUTE

Statutory Requirement, M.G.L. c. 111, Section 142 K (a)

The Massachusetts Low Emission Vehicle statute provides in relevant part:

"…the Department of Environmental Protection, hereinafter referred to as the department, shall adopt motor vehicle emissions standards based on the California's duly promulgated motor vehicle emissions standards of the state of California unless, after a public hearing, the department establishes, based on substantial evidence, that said emissions standards and a compliance program similar to the state of California's will not achieve, in the aggregate, greater motor vehicle pollution reductions than the federal standards and compliance program for any such model year. The department shall issue detailed written findings before and after holding a public hearing pursuant to this paragraph and said hearing shall be subject to the provisions for public hearings contained in chapter thirty A. …"

Technical Analysis and Findings

In accordance with M.G.L. c. 111, Section 142K, the Department assessed the air quality impacts of adopting the California vehicle GHG standards, as compared to the impacts of having federal standards in place in Massachusetts. The Department reviewed the extensive analysis performed by the California Air Resources Board (CARB) in the development of the standards, as well responses by CARB and other states to comments received during their respective rule making processes. The Department further utilized an assessment performed by the Northeast States for Coordinated Air Use Management (NESCAUM)[3] in its effort to determine the potential reduction of GHG emissions specific to Massachusetts. The results of this analysis, in conjunction with that performed by CARB, showed that adoption of the California vehicle GHG emissions standards would result in a reduction in CO_2 equivalent emissions in Massachusetts. The Department has also concluded that based on the afore mentioned analyses, adoption of the proposed standards will not result in the huge increases of criteria (smog forming) pollutants as predicted in manufacturer sponsored studies.

[3] NESCAUM Study on GHG reductions, modified for Massachusetts' 5% tax rate. 11/02/05

Therefore, based upon the Department's technical analysis as set forth in the Department's Background Document and Technical Support to the proposed amendments, the Department finds that the California Low Emission Vehicle program, including the Vehicle Greenhouse Gas standards, provides Massachusetts with greater motor vehicle pollution benefits than the current federal motor vehicle emission control program.

Appendix A. Individual Commenters

Barbara	Abbott
Kristine	Acevedo
Rebecca	Backman
Nancy	Beach
Joseph	Belisle
Tracy	Bruns
Bob	Budd
Douglas	Bumpus
Craig	Capone
Heidi	Clark
Sally	Coburn
John	Curcio
Stephen	Donnelly
Susan	Donohoe
Steven	Engler
Jeffrey	Eyges
Sana	Fadel
Pamela	Faustine
Tom	Fedak
Leona	Florek
Michael	Francis
Robert	French
Marie	Fukuda
Deborah	Galef
Sarah	Gant
Carol	Gignoux
Kayne	Graveline
Gregory	Grymek
Lori	Hartzband
Mr. Clarke	Haywood
Arthur	Helmus
Ian	Hoag
Dylan	Hunter
Christine	Hutchins
David	Hutto
Lee	Kefauver
Barry	Kesselman
Ben	Klass
Jessica	Korecki
Wendy	Krauss
Marin	Kress
Katherine	Langenberg
Paul	Lauenstein
Annie	Laurie
Thomas	Leary
Rory	MacCrimmon
Trudy	Macdonald
Leslie	Mahoney
Robert	Mazairz
Edwin	McCarthy
Andrew	McFaden
Gwen	Miner
Amy	Moeckel
Frederic	Morris
Anne	Moseley
William	Moss
Denise	Mumley
John	Nelson
Sandra	Nunes
Emily	OBrien
Jean	Oliphant
Susan	Pace
Richard	Parker
Stephen	Payne
Joanna	Phippen
Danielle	Piscatelli
Marlana	Pitas
Elaine	Richard
Stephen	Robinson
Ken	Ross
Janet	Rothrock
Robert E.	Rutkowski
Mary	Sacksteder
Emily	Sadler
Cara	Sanford
Chris	Schaffner
Jessica	Schultz
Elisabeth	Sigman-Somerset
Michael	Small
Bill	Sprows
Oliver	Stewart
Barbara	Strell
Thomas	Such
Jane	Torpie
Cheri	Vallone
Gordon	Van Tassel
Gary	Watson
Douglas	Weihrauch
Bob	Williams
P T	Withington
Marcia	Zuckerman